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APPLICATIONS OF PSYCHOLINGUISTIC THEORY TO FOREIGN LANGUAGE TEACHING.

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A PRELIMINARY DISCUSSION OF THE FIELD OF PSYCHOLINGUISTICS IS GIVEN TO PROVIDE THE BACKGROUND FOR ILLUSTRATING ITS APPLICATION TO FOREIGN LANGUAGE TEACHING. THE SPECIFIC EXAMPLES GIVEN ARE FROM A PROGRAMED COURSE DEVELOPED BY THE AUTHOR FOR TEACHING SPANISH TO COLLEGE STUDENTS. THE MORPHEMIC AND SYNTACTIC STRUCTURES OF THE LANGUAGE ARE EMPHASIZED, ON THE BASIS OF A DETAILED CONTRASTIVE ANALYSIS OF THE LANGUAGES INVOLVED. A DIAL-SELECTION AUDIO-VIDEO LANGUAGE LABORATORY IS USED FOR PRESENTATION OF THE MATERIALS. THIS LABORATORY IS UNIQUE AND EXISTS IN THIS FORM ONLY AT FLORIDA ATLANTIC UNIVERSITY. THE MATERIALS CAN ALSO BE ADAPTED FOR PRESENTATION IN MORE TRADITIONAL SETTINGS. EXPERIMENTAL RESULTS OBTAINED WITH THE PROGRAM ARE DISCUSSED AND FUTURE APPLICATIONS OF PSYCHOLINGUISTIC THEORY TO LANGUAGE TEACHING ARE PRESENTED. THIS PAPER WAS DELIVERED AT THE SOUTHERN CONFERENCE ON LANGUAGE TEACHING (2ND, ATLANTA, FEBRUARY 3-5, 1966). (RS)

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APPLICATIONS OF PSYCHOLINGUISTIC THEORY TO FOREIGN LANGUAGE TEACHING

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Some time ago, when I was an instructor at Trinity College in Hartford, Connecticut, I taught a course entitled "Language, Thought, and Communication" in which there was a student who had some problems with a course in English composition. He told me that unless he wrote a very good paper he would fail the course and as a consequence not be able to graduate. I suggested that he write a paper on a work about which there was a controversy concerning which of two writers was the author. In it he could compare the works of the two authors with the work in question, using the type-token ratio[1] in order to present evidence concerning the true authorship. (The type-token ratio is a statistical approach to language and can be used to measure different aspects of language, such as style, book readability, passage difficulty, verbal diversification, and so forth.)

The student wrote such a good paper that he received an "A" and was asked to read it before a scholarly society of the college. The departments of English, foreign languages, as well as other departments, were somewhat shocked at the very thought that statistics could be used to evaluate composition. They asked me to give a talk about that mysterious psycholinguistics which I was teaching and about which the faculty was puzzled. That was in 1956 at which time there was not a single course in any American university entitled "Psycholinguistics," although many universities offered courses related to this field. As a matter of fact, I think I am correct in saying that I taught the first course ever given

the title "Psycholinguistics." This course was offered in 1958 at the Language Institute of the University of Hartford.

The term psycholinguistics however, had already appeared much earlier. For instance, the Journal of Abnormal and Social Psychology[2] dedicated a whole issue entitled "Psycholinguistics," which was a report of the proceedings of the Summer Seminar on Psycholinguistics, held at Indiana University in 1953. This seminar was, in part, a continuation of a program of study being developed by the Social Science Research Council's Committee on Linguistics and Psychology. This council had already sponsored another seminar at Cornell in 1951.

Since those days the term psycholinguistics has become more and more known. It has become established as a field and a discipline in many colleges and universities, and various works have been published on the subject. However, it is as difficult today to define psycholinguistics as it was when George Miller[3] tried in 1954. It is as difficult to define the discipline as to define its limits or boundaries. In 1954 psycholinguistics was the newborn child of two rather mature behavioral sciences, with no clear scope or direction of its growth. Today the child has almost grown to manhood. There have been a great many research activities, as well as publications, which have given a wealth of knowledge to psycholinguistics, yet the problem is that as more research is done and more works are published, the field becomes more and more complex. Many different branches of science have been used and are being used to study language, branches of philosophy, philology, psychology, anthropology, physics, communication engineering, and neurology, just to name a few.

Psycholinguistics was first an attempt to relate all these different approaches into a single coherent picture of language - a general science of language. However, with all the research and recent publications it seems to have moved into the very complex science of communication. One must remember that the term language, used in different contexts, may refer to communication, e.g. the language of humans, the language of the bees, the language of the computers.

It would be impossible even to begin to give a survey in this paper of the research on psycholinguistics. Saporta's book[4] of readings on psycholinguistics is divided into topical sections under which the areas and directions of theoretical and experimental research in this field are delimited. According to Professor Diebold, these topical sections represent subfields which may be "implicitly recognized as constituting the subject matter of psycholinguistics."[5] They are as follows: 1) The nature and function of language; 2) approaches to the study of language; 3) speech perception; 4) the sequential organization of linguistic events; 5) the semantic aspects of linguistic events; 6) language acquisition, bilingualism, and language change; 7) pathologies of linguistic behavior; and finally, 8) linguistic relativity and the relation of linguistic processes to perception and cognition. These very general topics just give a synopsis of its scope, because from psychology of learning to the new mathematical psychology, from abnormal communication to cybernetics, everything which relates to the broad concept of communication, seems to fall within the realm of interest of psycholinguistics.

The name psycholinguistics is, of course, a combination of two major

disciplines which form this new field. However, psycholinguistics is different from either linguistics or psychology. Many years ago the late Ferdinand de Saussure[6] made a distinction between (la langue), a language system, and (la parole); the manifestation of this system in the speech of particular individuals. This distinction suggests that in a given language one can say certain things only in certain ways; thus the speech of an individual is subject to the structure of his system. Anthropologists and linguists have been mainly interested in the language system (la langue) and have paid very little attention to the individual, since, in any study of a language one deals with social facts and social rules, which, as Cassirer said, are "quite independent of the individual speaker."[7]

Psycholinguistics makes a distinction similar to that of de Saussure's, although with different objectives and therefore different results. Psycholinguistics differentiates between a language as a system external to the user, and languages as states of the user. Linguistics is primarily concerned with the process of the system, and psycholinguistics in the individual process of the system. That is, psycholinguistics is concerned with the system as it affects the individual.

The different approaches to this process of language behavior and their relation may be seen in the summer seminar on psycholinguistics held at Indiana University in 1953. There the linguists, communication theorists, and psychologists who participated in the seminar, examined and attempted to relate; 1) the psychologists' concept of language as a system of habits relating signs to behavior, 2) the linguistic concept

of language as a structure of systematically interrelated units and, 3) the information theorist concept of language as a means of transmitting information.[8] It has been with these related approaches to the language process that psycholinguistics, through experimental and theoretical research, has developed today a basic body of knowledge about language and its different aspects.

In general, however, there has been a lack of practical application of this psycholinguistic theory to foreign language teaching. There has been in foreign languages, of course, theoretical and experimental research which will fall into the areas of interest of psycholinguistics, but little or nothing has been applied to practical teaching. Today the foreign language teaching field is still beset by many different philosophies or false beliefs. There are many different methods, such as the direct method, the grammar-translation method, the audio-lingual method, the linguistic method, and so forth. While people may discuss their different advantages, the real difference among these methods is, as Professor Carroll points out, just a matter of emphasis on certain teaching procedures.[9] This point is supported by the psycholinguistic experiment of George A. C. Scherer and Michael Wertheimer of the University of Colorado, who compared the audiolingual method with the grammar-reading method in teaching German. After their long experiment was over they concluded that while the two methods showed occasional differences in various aspects of German, the overall proficiency gained by the students in both methods was very much the same.[10]

In a broad sense, one may say that in foreign language teaching

there are many opinions but very little conclusive experimental data. Once, somebody discussing the differences among learning theories, said that learning theorists reminded him of a group of blind people, each holding different parts of an elephant and each trying to describe the whole elephant. The same can be said about foreign language teaching.

There are still supposed experts who believe that one learns a second language very much the same way as a child learns his native language. Yet there is tremendous psychological evidence to the contrary. Foreign language teachers are told that language is primarily a system of sounds, therefore they have to teach the sounds before teaching reading and writing. However, this approach is just one linguistic philosophy based on a school of linguistics whose research was mainly on Indian languages without writing systems. Students around the country are taught dialogs before they even fully understand the meaning and sequence of sounds which results in endless frustration and poor mastery of the language.[11]

Many other examples could be brought up to point out that although in the last few years the teaching of foreign languages has changed to meet new needs and has improved in technological aids, in applications from linguistics and psychology in general, it is still confused and based on assumptions rather than on experimental research, and one wonders to what extent there has been any improvement in teaching foreign languages in the last decade. In this short paper there is not enough time to try to discuss the pros and cons of the different assumptions, but perhaps what I have to say next will give insight into how wrong these assumptions are and how important it is to bring psycholinguistic methodology into

foreign language teaching rather than some linguistic philosophies or misunderstood psychological theories.

In any organismic communication situation there are different behaviors to take into consideration: the intentive and encoding behaviors of the transmitter, the message or code, and the decoding and interpretive behavior of the receiver. In the intentive behavior the transmitter has something he wants to transmit, in the encoding behavior the transmitter chooses from his potential operant behavior (behavior which has been reinforced) the particular response he wants to make to a particular stimulus. Sometimes the choice might be a language, if he is bilingual; sometimes a choice of verbal units, or writing instead of speaking. The message or code is the individual manifestation of the encoding behavior. When this is overt behavior it might be a succession of sounds or a series of signs on a piece of paper. Whatever it is, it is either audible, visible, or tactile. The decoding behavior of the receiver is the perception of the message and the series of discriminatory responses he makes to the elements of the message. This discriminatory response is also based on the operant behavior of the receiver. An interesting aspect of the decoding behavior is that the discriminatory responses which the receiver makes are to the units of the message. These responses are greatly helped by the context of the message. Thus he pays a great deal of attention to the units of the message. The interpretive behavior is the behavior subsequent to decoding the message.[12]

The linguist is interested in the message as part of a system, the psychologist in the different behaviors of the transmitter and receiver,

and the communication theorist in the transmission of the message. The linguist analyzes the language system, and describes the different units of a language, i.e., phonemes, morphemes and syntactic structures, and how they interrelate. The messages are derived from the system. The communication theorist is interested in how accurately the messages can be transmitted. This involves the measurement of the efficiency of any communication channel, which entails measuring the amount of information carried by a message or by the units which form the message. The word information is used here in a special sense. Information is based on choice, the amount of information of any unit in a message is the range of possible alternatives that may occur. For instance, the letter q in English does not have any information because only the letter u can follow. Information leads to another communication theory concept called redundancy. Redundancy is simply when more symbols are used to encode a message than are theoretically necessary. All languages are redundant since the grammatical rules of language are a source for redundancy. For instance, the definite determiner la in Spanish or French is more redundant and has less information than the English the, since in Spanish or French it indicates that the noun following has to be feminine and singular, whereas in English it can be of any gender or number. Redundancy is very important to reduce the effects of noise by which is meant any possibility of error in the message. The more redundancy there is in a message the less amount of information and the fewer possibilities for noise.[13]

The psychologist is interested in the structural units of language as behavioral units, in the acquisition of these linguistic responses, in

the strength of these responses, in the differences of language behavior, and the organization of language behavior. All this leads to what Professor Miller has called the verbal context. Verbal context is related to the interdependence of verbal units, and to the extent that a verbal unit is determined by other verbal units. In brief, it is all the communicative acts which surround any specific verbal unit,[14] or as Skinner would say, the special conditioning by which verbal invironment has shaped any unit of verbal behavior or verbal operant.[15]

Semiotic, the science of signs, used for communication purposes, may also help to explain how these theories apply to foreign language teaching. In any foreign language the average student is faced with different kinds of semiotic systems, with different linguistic, psychological, and communication processes. According to Morris, the developer of this theory, semiotic has certain specific rules which control communication with signs. Without these rules communication would be impossible. The controlling rules are: 1) the relation of signs to other signs (linguistics), 2) relation of signs to designata (semantics), 3) relation of signs to their users (pragmatics).[16]

If Morris' theory is applied to language, one finds that language has different levels of signs. For instance, in the spoken language there are phonemic, morphemic, and syntactic structures. The three rules of semiotic form in each level the verbal context which a student has to learn. This is because the verbal context of each sign is really the complex meaning of the sign, whether phoneme, morpheme, or syntactic structure. A similar point has already been made in linguistics by Fries'

structural meaning,[17] although he dealt only with the meaning of verbal units as they relate to each other. In learning a foreign language at the syntactic level, students begin moving to a higher level immediately and they are not made aware enough of the redundancy on the lower levels. The result is that every unit has a great amount of information, hence there is no accurate verbal context and the possibilities for misunderstanding and incorrect learning are very great. The outcome is usually poor encoding and decoding behaviors.

In the written language the student has similar levels and similar problems. In the written language there are letters, affixes, words, and sentences. However, in many cases, reading and writing are not taught simultaneously with the spoken language, because there is the assumption that there will be interference of native relationships. This is very true when talking about higher levels, for instance, words. A good example of this is the research of D. Muller on the effects of the written word on pronunciation.[18] Another example is the poor results of teaching reading to American children by the "look and say" method.[19]

These poor results occurred because there were two different levels of language involved, and the interference was due more to the conflicts of the different levels than to the different codes. If the levels related are the same, and the student begins with the first levels, phonemics and graphemics, the approach is in accordance with psycholinguistic theory and more helpful to the student. When two related sets of signs - sound and letter - are transmitted simultaneously, taking into consideration the different linguistic problems and relationships particu-

lar to each language system, they carry greater redundancy than when each one is transmitted independently. Furthermore, the association of the two signs will be strengthened each time either one is missing or masked from a stimulus and the interpretive response of the decoder reinforced. As this association and its reinforcement is increasingly expanded to the sequence of signs and designata, it will proportionately decrease the amount of information of any unit and render the verbal context of that unit.

From the first moment a student enters the classroom or the language laboratory to learn a foreign language, any sound, any letter, any verbal structure, has an infinite number of possibilities of occurring, therefore the amount of information that any verbal unit carries for his decoding behavior is infinite. The student's capacity for imitation is minimal, since, as Professor Miller has pointed out, "if a listener is completely unprepared for the sequence of speech sounds that he hears, his ability to mimic the sound is greatly reduced."[20] Therefore, the objective of the teacher or teaching materials should be to give the student a great deal of redundancy for each verbal unit in a series of sequential steps starting from the graphemic-phonemic level, in order to reduce for the student the amount of information of each verbal unit. This redundancy strengthened by reinforcement (operant conditioning), should try to give the student a verbal context very close to what native speakers of the target language have for that verbal unit. Until students are acquainted with the verbal context of each level of signs they should not be allowed to move to the next level. This basic verbal context will become the operant behavior

which will help the student to discriminate, and better imitate sequences of sounds and eventually to move quickly to higher levels, (i.e., morphemic, and syntactic). Further training along the same concepts in morphemic and syntactic structures will expand his verbal context at these levels to an operant behavior, nearly approximating that of a native speaker. This means that in listening-speaking skills this approach will also reduce the student's latency in the intentive-encoding behaviors or decoding-interpretive behaviors.

Some of our department experiments at Florida Atlantic University may serve to illustrate the application of these psycholinguistic theories to foreign language teaching. While we had applied these theories in teaching for several years with excellent results at the Language Institute of the University of Hartford,[21] and for the past two years at Florida Atlantic University, we did not have any results or comparisons with high school students. For this reason we decided to start an experiment with our materials at Nova High School, Fort Lauderdale, Florida.

It has been explained before that one of the assumptions of some linguists is to teach sounds first and reading and writing later. Many people have even understood this to mean to teach sounds from the syntactic level. How misleading this assumption is may be seen from our psycholinguistic experiment at Nova. For the experiment, some students from that school were selected at random from a level 1 Spanish class and subjected to intensive training in discrimination and pronunciation of sounds and their written equivalents. The control group began the Audio-Lingual Materials in the conventional manner with a teacher and no written materials.

The material for the experimental group was a linear programmed self-instructional text coordinated with tape recordings and included instruction-levels on vowels, consonants, linking, stress, intonation, and syllabication. Phonemic-graphemic relationships were taught by first presenting in a series of frames the relationship between sounds and letters (this introduced redundancy), then in the following frames students had to discriminate between a group of graphemes in listening to a sound. Next the students moved into other frames with minimal pairs, each missing a grapheme and they had to fill in the missing grapheme while listening to the pronunciation of the words. Later, in other frames, the students moved from one missing grapheme to several and then to entire words. In this way the student was made aware of the amount of information of each unit through its verbal context. In all the material the student was taught to make a relationship between the sound-signs and written-signs and always had to make an overt response, either written or oral, to the stimulus of the tape which was strengthened by reinforcement.

When the students of the experimental group reached the terminal behavior of the programmed text they moved into the A-LM Materials which they were given to study. In a short time they had overtaken the control group in dialog mastery, as proved by the A-LM achievement tests administered to both groups, and they were also superior in writing, reading, speaking, and comprehension. Soon they moved out in front of the control group in rate of learning and material mastered. At the same time their pronunciation was better than that of the control group. These results are due to the applications of the theories just mentioned. In beginning

with this approach, students at Florida Atlantic University, on a self-instructional basis, can do in one trimester the work that would normally take close to two trimesters with the conventional approach.

The same theories are applied to teach the higher levels of language. Morphemics and syntactic structures are taught in many different ways around the country as dialogs, pattern substitution drills, analogy, transformation, and so forth. Linguistics has been used to choose the verbal units, and linguistic contrastive analysis to warn the teacher about the pitfalls of structure interference between the native language and the target language. But again, whether in programmed instruction or other methods, there has been very little application of psycholinguistic theory. These psycholinguistic theories were also used to develop an Audio-video Self-instructional course in Spanish. Since it would take many pages to explain the whole course, only a few examples will be explained here. At the beginning of the course, after teaching gender, and number of nouns, what is a noun phrase and a sentence, the program moves into the determiners. (Students entering this course already have taken the program on pronunciation and writing just explained above.) The determiners are all grouped together (articles, demonstrative and possessive adjectives) and are taught in the following way. After a panel explaining the determiner <u>este</u>, for example, and its morphological variations, the student is given a series of frames with a noun referring to a picture (this picture has a hand with a finger pointing to an object) and the student has to choose the appropriate determiner to form a noun phrase with the noun. (This introduced redundancy at this level). Next

he moves to other frames where there are the same type of picture and noun but no determiner. The student again has to form a noun phrase with the appropriate determiner which fits in the verbal context of the frame (the noun and the picture are redundant enough to make the student emit only the specific determiner to complete the message.) Finally, in the following frames he has the same type of picture, although with different objects he already knows; with no written noun or determiner, thus the verbal content in the frame is expanded and the student has to produce the whole noun phrase describing the picture upon receiving an aural stimulus. (The picture and the aural-stimulus are so redundant as to have reduced his choice to emit only a specific noun phrase to complete the message.)

After a group of determiners are taught in this way with his responses always being reinforced, the student moves to other problems with question frames consisting of questions made up of noun phrases only. He has to answer these questions according to the pictures providing the appropriate noun phrase which describes the picture. In these frames he works on selection and transformation of verbal units in relation to experience, to test and reinforce the verbal context of those units. For instance, to a frame saying "That man?" with a picture of a hand pointing to and touching a dog, he has to answer, "No, this dog." In this way the course develops to more complex structures and situations in which the student has controlled conversations with the TV and he is presented written stories with pictures to which he has to give overt responses. The programmed materials are based on the linear technique with frames to which stimulus the student has to give written and oral responses. For this type of material we developed

a dial-selection audio-video language laboratory, which, I believe, is the first of its kind in the world.[22] However, since the pictures which appear on TV are also found in the textbook, the materials can be used with a more conventional language laboratory without television.

The aim of the program is to teach morphemic and syntactic structures by building the student's operant verbal contexts through a sequence of different and interrelated verbal and non-verbal situations. This is accomplished through redundancy maintained in strength by reinforcement. By making the student select, manipulate, and transform verbal units from the simple to the complex, in relation to experiences, we also achieve the purpose of relating his learning to the very process of language. Concepts of transformational grammar are used to develop materials. In the presentation and progression of items we try to base our approach on research done in the field of mathematical psychology. The purpose of this is to provide the student with an optimum number of verbal units he can recognize, retain, and produce at a given stimulus. Since the student is not using any of his native language structures, and has to respond to visual stimulus associated to a verbal stimulus of the target language, the problem of structure interference of his native language is at a minimum. Furthermore, his latency in the intentive-encoding or decoding-interpreting behaviors is very close to that of a native. The amount of information of any verbal unit has also been decreased to a point very close to that of a native.

At present the terminal behavior is developed from what is considered standard items and structures of an average first year college course.

We intend to expand the course to two years and apply the same theories to develop programs in other languages. We do not have any final comparative or validation data available although the results we have on student reactions, rate of learning, and so forth, are excellent. However, we have results for an experiment we conducted on similar principles at the Language Institute of the University of Hartford in 1964. There 60 students in a first year Spanish course taught by this approach were given the M-LA Cooperative Foreign Language Test, Form LA at the end of the course (this test was used as a control for the experiment) and in all skills of proficiency the students achieved higher scores than the norms of the control test for first year college Spanish.

These are only a few examples of applications of psycholinguistic theory. It would take another paper, or even a book, just to mention the possibilities I see in psycholinguistics for language teaching. Psycholinguistics has just begun to open a new door for foreign language teachers. We need a great deal of practical research and more applications to teaching, and above all, we need teachers trained along the new lines. Our world is changing, our concepts are changing, our students are changing, thus our teaching methods have to change, not by opinions, but by the same laws of science which have governed the changes of our environment.

1. For further details on the type-token ratio see G. A. Miller, Language and Communication, (New York: McGraw-Hill Book Company, 1951), 122ff.

2. See Supplement to The Journal of Abnormal and Social Psychology, 49, 4, Part 4 (October 1954) passim.

3. See G. Miller, "Psycholinguistics" Handbook of Social Psychology, 2 vols., ed., G. Lindzey, (Cambridge, Mass.: Addison-Wesley Publishing Company, Inc., 1954) II, 693-708.

4. See S. Saporta, ed. Psycholinguistics. (New York: Holt, Rinehart and Winston, 1961)

5. See A. R. Diebold, Jr., "A Survey of Psycholinguistic Research, 1954-1964," Psycholinguistics: A Survey of Theory and Research Problems, eds., C. E. Osgood and T. A. Sebeok, (Bloomington, Indiana: Indiana University Press, 1965), 208.

6. See F. de Saussure, Cours de Linguistique Generale, 3rd Edition, (Paris: Payot, 1964) especially chap. III.

7. E. Cassirer, An Essay on Man (New York: Doubleday Anchor Book, 1954) 158.

8. See The Journal of Abnormal and Social Psychology, 49, 4, Part 4, (October, 1954) 8ff.

9. See J. B. Carroll, "Research on Teaching Foreign Languages," Handbook of Research on Teaching, ed., N. L. Gage, (Chicago: Rand McNally and Company, 1963), 1062.

10. See G. A. C. Scherer and M. Wertheimer, A Psycholinguistic Experiment in Foreign-Language Teaching, (New York: McGraw-Hill Book Company, 1964) especially p. 245.

11. For an interesting discussion on some of the wrong assumptions of foreign language teaching see W. M. Rivers, The Psychologist and the Foreign Language Teacher (Chicago: The University of Chicago Press, 1964) passim.

12. For further details see J. B. Carroll, The Study of Language, (Cambridge, Mass.: Harvard University Press, 1953), 88-92.

13. See C. Cherry, On Human Communication, (New York: John Wiley and Sons, Inc., 1957) 115ff and 226ff.

14. Language and Communication, 81 ff.

15. See B. F. Skinner, Verbal Behavior, (New York: Appleton-Century-Crofts, Inc., 1957) chap. 3.

16. C. Morris, Foundations of the Theory of Signs, International Encyclopedia of Unified Science, Vol. I, No. 2 (Chicago: University of Chicago Press, 1938), 6.

17. C. C. Fries, The Structure of English; an Introduction to the Construction of English Sentences, (New York: Harcourt and Brace, 1952), 56.

18. D. Muller, "The Effect Upon Pronunciation and Intonation of Early Exposure to the Written Word," The Modern Language Journal, XLIX, 7, (November, 1965) 411-413.

19. For an interesting evaluation of methods of teaching reading see R. Brown, Words and Things, (Glencoe, Ill.: The Free Press, 1958) 65 ff.

20. Language and Communication, p. 79.

21. I discussed the theories behind these experiments as they relate to programmed instruction in a paper entitled "Some Concepts of Modern Communication Theory as They Apply to Programming an F.L. Course," at the Second NSPI Convention, San Antonio, Texas, April 1964.

22. See J. Estarellas and T. Regan, "Tomorrow's Language Lab Today," The Florida F. L. Reporter, 4, 2, (Winter 1965-66), 3-4.